PESTICIDE REGISTRATION
AND EVALUATION COMMITTEE (PREC)
Meeting Minutes – November 16, 2018

Committee Members/Alternates in Attendance:

Amalia Neidhardt – Department of Industrial Relations (DIR) – via webcast
Brian Larimore – Department of Resources, Recycling and Recovery (CalRecycle) – via webcast
James Seiber – UC Davis, Department of Environmental Toxicology
Kevi Mace-Hill – California Department of Food and Agriculture (CDFA)
Lori Lim – Office of Environmental Health Hazard Assessment (OEHHA)
Lynn Baker – California Air Resources Board (ARB)
Patti TenBrook – U.S. Environmental Protection Agency, Region 9 – via webcast
Randy Segawa – Department of Pesticide Regulation (DPR)
Valerie Hanley – Department of Toxic Substances Control (DTSC) – via webcast

Visitors in Attendance:

Ashlee Johnson – FMC Corporation
Dave Lawson – Western Plant Health Association (WPHA)
Emily Saad – Exponent
Henry Buckwalter – FMC Corporation
James Nakashima – Office of Environmental Health Hazard Assessment (OEHHA)
Jean-Mari Peltier – Environmental Solutions Group (ESG)
Maryam Khosravifard – California Department of Food and Agriculture (CDFA)
Stephen Siegel – California Department of Food and Agriculture (CDFA)

DPR Staff in Attendance:

Andy Rubin – Human Health Assessment Branch
Ann Schaffner – Worker Health and Safety Branch
Aron Lindgren – Pesticide Registration Branch
Chris Collins – Environmental Monitoring Branch
Denise Alder – Pesticide Registration Branch
Edgar Vidrio – Environmental Monitoring Branch
Eric Kwok – Human Health Assessment Branch
Jill Townzen – Pesticide Programs Division
John Sanders – Pesticide Programs Division
Kara James – Pesticide Registration Branch
Kevin Solari – Worker Health and Safety Branch
DPR Staff in Attendance continued:
Marylou Verder-Carlos – Pesticide Programs Division
Maziar Kandelous – Environmental Monitoring Branch
Minh Pham – Environmental Monitoring Branch
Nathan Desjarlais – Pesticide Programs Division
Pam Wofford – Environmental Monitoring Branch
Peter Lohstroh – Human Health Assessment Branch
Puttappa Dodmane – Human Health Assessment Branch
Russell Darling – Pesticide Registration Branch
Shelley DuTeaux – Human Health Assessment Branch
Svetlana Koshlukova – Human Health Assessment Branch
Weiying (Tim) Jiang – Human Health Assessment Branch

1. Introductions and Committee Business – Randy Segawa, Acting Chair, DPR

Approximately thirty-five (35) people attended the meeting and sixty-four (64) webcast viewers.

2. Air Program Updates and Quality Control Discussion – Edgar Vidrio, DPR

Recent updates the DPR’s Air Program Web site show consolidation and clean-up process compliance with the Americans with Disabilities Act. The goal is to make the information more accessible and easier to find reports. Current content is under evaluation. Any content removed is still available through a Public Records Request.

On November 16, 2018, DPR released the final 2017 Air Monitoring Network Report. Modifications to the draft report were made based on comments received during the public comment period. DPR’s Pesticide Air Monitoring Results Database was developed to improve transparency, provide access to collected pesticide ambient air monitoring results in an easier to use format, and share the data. The database includes results from long-term Ambient Air Monitoring and seasonal Ambient Air Monitoring. As of November 16, 2018, the database contains 49,303 ambient air sample records with published and preliminary data. ‘Published’ refers to results that were reviewed, verified, and have been included in a publication. ‘Preliminary’ refers to newer results that have gone through a preliminary review and verification process, but may be subject to change after further verification and have yet to be included in a publication.

In regards to the Methyl Bromide Field Spike Recovery, DPR found that percent recoveries of methyl bromide field spike samples were outside of acceptable control limits set by ARB. In 2017, methyl bromide field spike samples had an average recovery of 8.6% (n = 21), which is low. Because of this, DPR requested ARB to conduct an extensive investigation into the low spike recoveries and provide DPR with a findings report. In October, DPR received an ARB memorandum titled: “2017 Air Monitoring Network Matrix Spike Results and Matrix Spike Experimental Results” (CARB, 2018). The memo provided background on the spiking process.
and analytical instrument issues including a catastrophic water management system failure. The lab conducted a spike study to determine the cause of low spike recoveries and its effect on collected field data. For the spike study, ARB theorized that the water added to the matrix spikes during preparation combined with ambient humidity suppressed the methyl bromide signal during analysis which led to low spike recoveries. The suppression effect was only seen with field spikes and not with laboratory control spikes or field samples since these other samples had no added water. The spike study’s methodology included eighteen samples spiked in triplicate with various standard and water volumes. Samples were then sent to field to collect 24-hour air samples and each test spike sample was collocated with a primary sample. After this, samples were evaluated on three different GCMS instruments and the results were compared to one another. The results showed that the added water in combination with ambient humidity created a matrix effect that masked the methyl bromide peak, which resulted in low recoveries. When a water management system was used, acceptable recovery results were measured. ARB concluded that low spike recoveries were due to the addition of water during the spike sample preparation process. Methyl bromide matrix spikes were the only results compromised and should be invalidated. Overall, only data for the field samples analyzed in 2017 was valid.

As previously mentioned, recent low field spike recoveries led to investigations conducted by both ARB and CDFA laboratories, independently. Laboratory investigations were time intensive, consumed multiple laboratory resources, and ultimately determined that the low recoveries were isolated to spikes and spike preparation process and did not affect the collected field samples. As a result, DPR assessed the need and value of fortified field spikes included in pesticide ambient air monitoring studies. A memorandum detailing this assessment was released on November 9, 2018 (DPR, 2018).

Quality control samples collected as part of DPR’s air studies were tested with the following criteria in mind: trapping efficiency, storage stability, laboratory blank, laboratory matrix spike, field blank, co-located duplicate, and fortified field spike. Trapping efficiency determines appropriate sample media, duration, volume needed, and ability to trap pesticide of interest. Storage stability determines the stability of residues during sample storage and the results validate the residue’s rate of decomposition in a representative matrix. The laboratory blank is an analyte-free matrix sample used to calibrate and to evaluate for contamination. The laboratory matrix spike is a laboratory sample to with a known amount of pesticide used to assess for matrix effects. The field blank is a sample containing no pesticide residue that assesses for contamination issues. The co-located duplicate is a sample collected adjacent to the primary sample and used to assess for measurement precision. The fortified field spike is a sample with known amount of pesticide placed on sampling equipment, treated as a field sample, and used to assess recoveries under field conditions.

Fortified field spike samples are the only quality control samples collected by DPR that are not a common practice in ambient air monitoring studies. To our knowledge, DPR is among the few organizations that collects fortified field spikes as part of ambient air monitoring studies. ARB only collects fortified field spikes “as a special request from DPR and are not a part of the OLS standard operating procedures nor of US EPA’s Method TO-15” (CARB, 2018). Washington State Department of Health (WSDH) collected fortified field spikes for their pesticide air monitoring study following the approach “as defined by the California Department of Pesticide
Field spike samples are not normally collected for a number of reasons, some of which include lack of commercially available pesticide gas standards, difficulty creating and introducing airborne pesticides into sampling media, and lack of meaningful data gathered from fortified field spike results. In addition, there are several reasons why fortified field spikes recoveries may fall outside of the acceptable criteria but may not be a result of collection or analytical issues such as different spiked amounts, volatization or degradation, low spike amounts, humidity and spiked delivery method.

Since the late-1990s, DPR has questioned the validity, value, and significance of field spike samples as currently prepared and collected (Biermann and Barry, 1999). Most of these questions are due to the spiking delivery method currently utilized. Spiking method used by CDFA and ARB, in the absence of pesticide gas standards, has been by injecting a solvent solution that contains the dissolved pesticide into the sampling media. Current spiking process differs from environmental conditions and may inadvertently affect the results since ambient pesticides not dissolved in a solvent. Spiking solution added as a single liquid injection instead of as a steady, low-level 24-hour concentration as it would be in the field. Evaluations into low recoveries of methyl bromide and methyl isothiocyanate field spikes conducted by outside agencies indicate problems with spikes and spiking process, rather than a problem with the collected field samples.

Although fortified field spike samples provide some additional information on recovery from the sampling matrix, the value of these samples, as currently prepared and handled, in assessing any quality control aspect of the air monitoring studies conducted by DPR’s Air Program is debatable. Results from trapping efficiency studies, storage stability studies, as well as those from laboratory blanks, laboratory fortified matrix spikes, field blanks, and co-located samples provide greater verifiable information and give DPR confidence in the analytical method and resulting air concentrations. Therefore, DPR recommends terminating the collection of fortified field spikes as part of air monitoring studies conducted by or on behalf of DPR’s Air Program. Sampling procedural change is to begin on January 1, 2019.

For more information, please visit DPR’s Web site at <https://www.cdpr.ca.gov/docs/emon/airinit/airmenu.htm> or contact Environmental Program Manager I, Edgar Vidrio at <Edgar.Vidrio@cdpr.ca.gov> or by telephone at 916-323-2778.

### 3. Problem Formulation for Allyl Isothiocyanate (AITC) Risk Assessment

– John Sanders, DPR

During the problem formulation phase of DPR’s human health risk assessment process, which is to frame the risk characterization document, DPR assesses data related to toxicology, illness reports, pesticide use reports, pesticide sales, monitoring data, and exposure scenarios. Information regarding potential exposure pathways, adverse effects reports, relevant U.S. EPA risk assessments, important sources of uncertainty and variability in the data, and potential mitigation options is considered. DPR initiated the human health risk assessment for allyl isothiocyanate (AITC) (California Notice 2018-17), which notified stakeholders and requests relevant data about exposure scenarios, feasible alternatives, mitigation options, and data needed
to conduct assessment by November 9. AITC is primarily used as a pre-plant soil fumigant and is not an active ingredient found in a currently registered product in California. There were no reports of adverse effects from 2005-2017 and no illnesses reported. The AITC human health risk assessment came about due to animal toxicology studies that suggested there might be reproductive effects, genotoxicity, and oncogenicity. Studies indicated that there were abnormal changes and ulceration of nasal epithelium in rats, decreased motor activity, atrophy of olfactory bulb in rat brain, gene mutations, urinary bladder tumors in rats, and cataracts and retinal abnormalities in offspring of treated rats, and decreased neonatal survival. Screening assays indicate AITC is active on molecular targets such as nuclear receptors involved in cellular metabolism. DPR is considering exposure scenarios associated with pre-plant soil fumigants.

Potential mitigation measures include reduced application rates, reduced number of applications, buffer zones, and personal protective equipment. There are no known data gaps in the toxicology database or exposure scenarios. The analysis plan aims to identify the main toxicological effects and the Points of Departure (PoDs) according to relevant route of exposure, use the relevant PoDs and estimated exposures to estimate Margins of Exposure (MOEs), and compare risk estimates to selected target MOEs. DPR expects to complete Draft Risk Assessment by January 2020.

For more information, please visit DPR’s Web site at <https://www.cdpr.ca.gov/docs/whs/active_ingredient/aitc.htm>.

4. **2018 Pesticide Safety Information Series (PSIS) Updates** – Ann Schaffner, DPR

DPR developed the Pesticide Safety Information Series (PSIS) Leaflets in the 1970s and 1980s. Leaflets are used as a training aid for pesticide handlers and fieldworkers. During this time, the leaflets were crop specific and it became difficult to update them. Regulation requires employers of pesticide handlers and fieldworkers to use these leaflets in training and to provide hazard communication information. Leaflets contain vital information for pesticide handlers and fieldworkers on pesticide safety in accordance with state pesticide worker safety regulations and pesticide labels. This information is available on DPR’s Web site in English, Spanish, and Punjabi. There are two series of leaflets, ‘A’ and ‘N’. The “A” Series covers agricultural settings (production agriculture, fruits, vegetables, commercial products, Christmas trees, etc.). The “N” Series covers non-agricultural settings (structural pest control, landscapes, right-of-way maintenance).

The leaflets were revised in 2015 to clarify information, improve accessibility, and reformat the leaflets. This revision also made it easier to view the leaflets on tablets and smart phones. In 2018, more revisions reorganized the leaflets to improve ease of understanding and update the language to include recent changes to state pesticide worker safety regulations.

PSIS A1, which covers working safely with pesticides in agricultural settings, was revised to reflect changes to training requirements for fieldworkers and handlers, hazard communication requirements for fieldworkers and handlers, fieldworker and handler decontamination facility requirements, personal protective equipment (PPE) exemptions and minimum age requirements.
PSIS N1, which covers worker safety in non-agricultural settings, was revised to reflect changes to training requirements for handlers, hazard communication requirements for handlers, handler decontamination facility requirements, and PPE exemptions.

PSIS A3 and N3 revisions reflect changes to enclosed cab definition, PPE exemptions, and closed system regulations. PSIS A4 and N4 revisions reflect changes to training requirements for fieldworkers and handlers, requirements for emergency medical care, and fieldworker and handler decontamination facility requirements.

PSIS A6 and N6, which cover safety rules for minimal exposure to pesticides, were revised to reflect changes to PPE exemptions. PSIS A7 and N7, which cover information for washing work clothes after working around pesticides, were revised to reflect changes to training requirements for fieldworkers and handlers.

PSIS A8 and N8, which cover safety rules for pesticide handlers, were revised to reflect changes to training requirements, hazard communication, decontamination facility requirements, application-specific information, emergency medical care, and the minimum age requirements.

PSIS A9, which covers safety rules for field workers, was revised to reflect changes to training requirements, hazard communication, decontamination facility requirements, early entry requirements, requirements for notice of application and completed applications, requirements for field work during a pesticide application and for field entry after an application, application-specific information, field posting requirements, emergency medical care, and minimum age requirements.

The Safe Drinking Water and Toxic Enforcement Act (Proposition 65) lists pesticides known by the State to cause cancer or reproductive toxicity updated. This information provided in leaflets A8, A9, and N8 and is maintained by OEHHA.

On October 15, DPR posted notice of revised leaflets for comment for 45 days. The comment period will end November 28 and DPR will post the revised leaflets on DPR’s Web site on January 1, 2019. For more information, please visit DPR’s Web site at <https://www.cdpr.ca.gov/docs/whs/psisenglish.htm> or contact Senior Environmental Scientist (Supervisory), Ann Schaffner at <Ann.Schaffner@cdpr.ca.gov> or by telephone at 916-445-0111.
5. **Updates to the PREC Charter** – Karen Morrison, DPR

In general, the charter outlines purpose, authority, and responsibilities of the Pesticide Registration and Evaluation Committee. It was last updated in September 2000, which is why DPR has proposed updates to clean up language and reflect current committee practices. The proposed updates state that the PREC may provide technical analysis and advice on environmental monitoring procedures and data analysis related to pesticides and pesticide use and DPR will consult with PREC on the creation of new subcommittees. Furthermore, the charter requires that representative agencies notify DPR of membership changes and removes the “performance criteria” section. Future reviews of PREC function and changes to the charter will be provided to the committee for comment and approval.

6. **Committee Comment**

Lynn Baker asked if DPR was recommending doing away with field spikes regardless of the sample collection media, whether it is a canister or absorbent tube. Edgar Vidrio replied yes, because there are currently issues with both media when it comes to making the spikes and treating them. DPR wants to reassess this at a later stage.

Lynn Baker then made a clarifying statement, stating that ARB has always done routine spikes, but there have been pesticides collected on absorbent media where the field spikes were a problem. In most cases, this has worked but not with everything. U.S. EPA’s standard procedure with the canister collection does not talk about field spikes. ARB uses canisters to collect gaseous data around the state, we do not do field spikes, so it is not surprising that there are issues with field spikes.

Lynn Baker later stated that ARB has monitored many pesticides for several years and given all of that data and the reports to DPR. These reports are no longer on the website, but available upon request now because of the changes made to the site. He then asked how someone would know to ask for an old report if the person was not aware that the monitoring was done in the past because the old reports have been removed for the site. Edgar Vidrio replied the current site does not have all of the completed reports, but there is a table on DPR’s website that lists every pesticide air monitoring study report conducted by DPR and ARB. The table includes study details, including pesticide monitored and study year. Anyone can request any study included in the table as well as unposted reports. If someone needs a report, the requestor can send an email with the report name and it will be emailed to him or her. The documents were removed because a lot of them were scans of originals and did not comply with ADA standards.

Marylou Verder-Carlos commented that all documents from all BDOs (Boards, Departments, and Offices) have to be ADA compliant by 2019.

Lori Lim asked if the field spike sample numbers had been used before to adjust the results. Edgar Vidrio replied that they have done that before for methyl bromide in the late 90s and there was a very thorough process done in order to do this. Randy Segawa also added that this was the old method for monitoring methyl bromide and that now we are using the canisters and not
charcoal tubes anymore, which have yielded odd results. Because of these results, a special study was created to introduce the gas phase onto the charcoal tubes. In doing so, they got about fifty percent recovery rate. These methods are no longer used.

Jim Seiber asked if the past samples that were collected on charcoal are now invalid. Randy Segawa replied that they are not because DPR does not believe that any of the air-monitoring field samples are invalid, with the exception of a few field spikes. Additionally, while monitoring for methyl bromide in the past using charcoal tubes, an intensive study was conducted to determine what adjustment was needed to account for poor recoveries with using this sample media. For these type of samples, the study provided sufficient quantifiable data to have us double the detected concentrations to account for the fifty percent recovery. DPR has no similar data for any of the other pesticides or sampling media to make this same type of adjustments.

Jim Seiber asked what effects AITC has on the workers that are exposed to it. John Sanders replied that it is irritation, but can refer to the report for more information.

Jim Seiber commented that if irritation is occurring, then that might create future problems for the workers when they are trying to see or navigate in the field. Accidents could happen.

Lori Lim asked if no known data gaps were exposure scenarios, are there air concentrations for those data. Weiying (Tim) Jiang replied not at this time. There is limited information from the exposure site but we are trying to limit the exposure and process data from the study directors.

Lori Lim asked what kind of surrogate data would be used. Weiying (Tim) Jiang replied that all major fumigants registered in California will be used and DPR will consider those with significant use in order to have a better chance of using California specific data.

Lori Lim asked if the registrants conducted air-monitoring studies for AITC. Weiying (Tim) Jiang replied they have not, but there are registrant AITC field data and ambient air concentrations.

Weiying (Tim) Jiang commented that even though there are not many AITC data, there are several other fumigants registered in California with similar use patterns that we might use as surrogate data sources to help estimate potential use and possible exposure to humans (occupational and non-occupational). We will also use modeling to estimate exposure.

Kevi Mace asked if DPR’s process similar to what U.S. EPA has done for AITC. Shelley DuTeaux replied that U.S EPA was considering the difference between their assessment of AITC when it came to using it as a biological versus using it as fumigant as of June 2018. They were interested in the approaches that DPR was taking, but had not, at that time, done a conventional fumigant human health risk assessment.

Jim Seiber asked if there will there be an assessment on whether these documents reach the intended audience. Ann Schaffner replied no because DPR has relied on feedback from counties
and other people in the outreach programs to make sure that workers have been getting the information in the leaflets.

Jim Seiber commented that this committee is an important function to ensure that people are informed about pesticides. He then asked how can we make sure what we do in these meetings is acted upon and received by DPR’s director. Karen Morrison replied that the nature of the issues raised during PREC dictates if the information is relayed to the director. If there is a severe issue, then it is reviewed by management.

7. **Public Comment**

Dave Lawson asked when are the leaflets going to be at business locations. Ann Schaffner replied they will be available as soon as they are on the website. After this, we expect people to check for the revised versions. Some leaflets will be printed out, but we expect people to print some themselves as well. If they cannot print it, then we can provide hard copies.

Dave Lawson asked how the leaflets get to the people that are required to show the information to their employees. Ann Schaffner replied that the counties will notify people in addition to DPR’s electronic mailing list.

Dave Lawson commented that the leaflets are required at the central business location and are accessible to those working at the retail locations.

8. **Agenda Items for Next Meeting**

Agenda items for the next meeting include addressing current pesticide drift data and safeguards and prevention of downwind drops.

The next meeting is scheduled for January 18, 2019 at 10:00 a.m. in the Sierra Hearing Room on the second floor of the CalEPA building, located at 1001 I Street, Sacramento, California.

9. **Adjourn**